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09/760,285	01/15/2001	Nicholas C. Nicolaides	MOR-0017	2664

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EXAMINER
NGUYEN, DAVE TRONG

ART UNIT	PAPER NUMBER
1632	15

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/760,285	Applicant(s) NICOLAIDES ET AL.
	Examiner Dave Nguyen	Art Unit 1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 May 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-71* is/are pending in the application.

4a) Of the above claim(s) *14-21,25,26,30-67,69 and 71* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,22-24,27-29,68 and 70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,5,7-12* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *detailed action* .

Applicant's election with traverse of Group VI claims (claims 23, 24, 27-29, 68, 70), species of 1, 2-dimethyl anthracene, wherein R1 and R2 are methyl groups and each of R3-R10 is hydrogen, in the response filed May 28, 2002 is acknowledged.

The traversal is mainly that Group VI and Group I should be rejoined for examination, and is persuasive. Applicant asserts that the purpose of making a gene of interest being hypermutable by using anthracene and the step of testing the hypermutation in the gene of interest is the core of the invention. In addition, applicant's traversal with respect to the restriction among Groups I, VI-XI is not found persuasive because of the reasons set forth in the restriction. The limitations that were necessarily for restricting the groups were not read into the claims but rather claimed explicitly in dependent claims of each of the corresponding Groups VI-XI. The fact that same class 514, subclass 44 does not preclude the examiner for making a proper restriction requirement, particularly since class 514, subclass 44 is enormous and contains an enormous number of distinct inventions. It is apparent that multiple distinct inventions are directed to same classes and/or subclasses do not establish applicant's assertion that there will be no serious burden on the examiner for examination of the claims as pending, especially when considering the nature of the each of the inventions and its intended breadth of the respective claims. Furthermore, an analysis step directed to *in vitro* proteins assays is clearly not the same as an analysis step of employing *in vitro* nucleic acid binding assays, nor is it the same of employing an animal for *in vivo* analysis, wherein each search and consideration for patentability is not necessarily directed to the same issue.

The restriction is therefore made final with respect to Groups II-V, VII-XI being patenably distinct among each other and from Group I and Group VI claims, which have been rejoined for examination in this application. Claims 14-21, 25-26, 30-67, 69, 71 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected claimed invention.

Elected claims 1-13, 22-24, 27-29, 68, 70 readable on the elected invention are pending for examination.

Elected claims 1-13, 22-24, 27-29, 68, 70 are objected because the claims are not written in a clear language that defined the metes and bounds of the elected invention. The claims embrace non-elected claimed invention and therefore must be amended to exclude non-elected claimed invention.

As a result of not having an undue burden during the prior art search of the elected species and the species 1,2-dimethyl-9, 10 benzanthracene and 7,12-dimethylbenz[a]antracene (DMBA), the species of 1,2-dimethyl-9, 10 benzathracene and DMBA has been rejoined for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-13, 22-24, 27-29, 68, 70 readable on a genus of "hypermutable cells" and/or "mutations in a gene of interest", which are products generated by the claimed methods and must necessarily exhibit any phenotype are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In addition, the claims readable on a method of making a generic **hypermutant animal including those of humans,** said animal comprising a cell whose genome in which any generic gene becomes hypermutable as a result of the activity of anthracene, thereby giving rise to any

phenotypic expression, are also rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The application contemplates that any phenotype as a result of a hypermutation in a cell and/or a gene of interest thereof can be generated by an administration of anthracene, which is not only a chemical mismatch repair inhibitor but also a carcinogen and/or toxic compound.

The as-filed application further contemplates that anthracene can be used to create any colony of hypermutable plants, yeast, and/or animals including those of humans. The as-filed application coupled with the cited prior art and working examples provides sufficient description of a genotoxic mutation in a mistmatch repair gene in a cell *in vitro,* which is produced by exposing the cell to anthrancene *in vitro,* and employing an MMR-sensitive report gene assay or a polynucleotide repeat marker nucleic acid binding assay to determine the presence of the mutation in said gene. In addition, the as-filed specification provides sufficient description of a genotoxic mutation in a mistmatch repair gene in a non-human cell *in vivo* comprising administering to the cell an effective amount of anthrancene, and employing an MMR-sensitive report gene assay to determine the presence of the mutation in said gene. Mainly, the as-filed specification and the prior art of record teach and disclose that a disruption of any native MMR gene including those of plants, yeast cells, and mice by anthracene causes an inactivation or silence of repair processes and/or activities of MMR genes that result in toxicity, induction of tumor growth or abnormal cell growth in plants, yeasts and mice. However, neither the application nor the incorporated references provide sufficient description of a representative number of species of *in vitro* and/or *in vivo* other hypermutable cells and/or genes in any animal, mammal, or plant, let alone a representative number of species of hypermutable humans or *in vivo* human cells. Further and with respect to claimed embodiments that read on hypermutable humans, it is apparent that an intended application of a carcinogen such as anthracene to cause a genotoxicity to MMR genes in any human is not a real-world utility of the claimed invention. As

such, it is not apparent as how one skilled in the art could have recognized and/or envisioned any other specifically named hypermutation of any gene and/or the resulting phenotype in a human that would have to necessarily provide a credible, substantial and specific utility as contemplated by the as-filed specification. The claimed invention encompasses the making of an enormous number of hypermutations of any gene in any cell without sufficiently describing the resulting altering phenotype and/or specifically named mutation of the gene of interest so as to have led a skilled artisan to recognize that applicant was in possession of the claimed invention. A simple assertion that an administration of a carcinogen of anthracene to any cell or animal or human or plant would generate any desired phenotype that is not *per se* a genotoxic or toxic to the animal or plant is not sufficient to satisfy the written description requirement under 35 USC 112, first paragraph. In addition to the issues as described above, Applicant's disclosure of a MMR-sensitive report gene assay or a polynucleotide repeat marker nucleic acid binding assay to identify the presence of a genotoxic mutation in MMR genes that exhibit a toxic phenotype in plans, and/or yeast and/or non-human animals as intended by the as-filed application, does not provide sufficient description of the structures of a representative number of a generic testing assay so as to measure and/or determine whether any gene of interest comprises a mutation.

In other words, it is apparent that on the basis of applicant's disclosure, an adequate written description of the invention defined by the claims, *e.g.* genus of animals being hypermutatble and/or cells being hypermutable in any gene of interest other than the MMR genes, requires more than a mere statement that it is part of the invention and reference to potential methods and/or assays for isolating the variants; what is required is the knowledge in the prior art and/or a description as to the availability of a representative number of species of such claimed genuses. A disclosure of no more than

1)A method of generating a genotoxic mutation in a mistmatch repair gene in a cell *in vitro* comprising exposing the cell to anthrancene *in vitro,* and employing an MMR-sensitive report gene assay or a polynucleotide repeat marker nucleic acid binding assay to determine the presence of the mutation in said gene; and

2) A method of generating a genotoxic mutation in a gene of interest in a mistmatch repair gene in a non-human cell *in vivo* comprising administering to the cell an effective amount of anthrancene, and employing an MMR-sensitive report gene assay to determine the presence of the mutation in said gene,

as in the instant case, is simply a wish to know the identity of any other hypermutable cell and/or beneficial and altering phenotypic animal including those of humans. Note also that the state of the art exemplified by Ngo *et al.* discloses that a nucleic acid sequence encoding a particular protein in any cell determines the protein' s structural, and functional properties, and a biological function of a encoded protein based on the primary amino acid sequence of the protein requires a knowledge of and description with regard to which amino acids in the protein' s sequence and/or nucleotides in the DNA, if any, are tolerant of modification and which are conserved (*i.e.,* expectedly intolerant to modification), and detailed knowledge of the ways in which a protein' s structure relates to its functional usefulness (Ngo *et al.,* in The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz *et al.,* (ed.), Birkhauser, Boston, MA, pp. 492-495). Thus, an exposure of any cell to a carcinogen or toxic compound such as anthracene so as to produce a desire change in the primary sequence of any gene of interest and its subsequent conformation of the encoding protein product so as to give rise to a beneficial phenotype is complex and appears to contradict the toxic effect of anthracene. As such, Claiming a generic hypermutable cell and/or animal and/or plant associated with any phenotype, which are broadly defined by the as-filed application, without defining what means will do so is not in compliance with the written description requirement. Rather, it is an attempt to preempt the future before it has arrived. (See *Fiers v. Revel*, 25 USPQ2d 1601 (CA FC 1993) and *Regents of the Univ. Calif. v. Eli Lilly & Co.*, 43 USPQ2d 1398 (CA FC, 1997)). Possession may be shown by actual reduction to practice, clear depiction of the invention in a detailed drawing, or by describing the invention with sufficient relevant identifying characteristics such that a person skilled in the art would recognize that the inventor had possession of the claimed invention. Pfaff v. Wells Electronics, Inc., 48 USPQ2d 1641, 1646 (1998). The skilled artisan cannot envision the detailed structure of the claimed hypermutable cell *in vitro* and/or *in vivo* other than those that were listed

above, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method. Thus, it is not apparent to one skilled in the art as to how claims encompassing a genus of hypermutable cells and/or hypermutable gene of interest in any cell *in vitro* and/or *in vivo,* as embraced by the claimed methods, find an adequate support from this instant disclosure at the time the invention was made.

Claims 1-13, 22-24, 27-29, 68, 70, readable on a genus of "hypermutable cells" and/or "mutations in a gene of interest", which are products generated by the claimed methods and must necessarily exhibit any phenotype are rejected under 35 U.S.C. 112, first paragraph, because the specification is only enabling for claims limited to:

1)A method of generating a genotoxic mutation in a mistmatch repair gene in a cell *in vitro* comprising exposing the cell to anthrancene *in vitro,* and employing an MMR-sensitive report gene assay or a polynucleotide repeat marker nucleic acid binding assay to determine the presence of the mutation in said gene; and

2) A method of generating a genotoxic mutation in a gene of interest in a mistmatch repair gene in a non-human cell *in vivo* comprising administering to the cell an effective amount of anthrancene, and employing an MMR-sensitive report gene assay to determine the presence of the mutation in said gene,

The specification is not enabling for claims directed to any other claimed embodiment within the elected claimed invention. The specification does not enable any person skilled in the art to which it pertains or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in In re Wands, 858 F.2d 731, 8USPQ2d 1400 (Fed. Cir. 1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature

of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Specifically, since the claimed invention is not supported by a sufficient written description, particularly in view of the reasons set forth above, one skilled in the art would not known how to make and use the claimed invention as broadly claimed so that it would operate as intended by the disclosed as-filed application.

In addition, the specification coupled with knowledge in the prior art does not provide sufficient guidance and/or evidence for one skilled in the art to make and use the claimed invention readable on any hypermutable cell associated with any altering phenotype, without any undue experimentation, particularly on the basis of applicant's disclosure.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in In re Wands, 858 F.2d 731, 8USPQ2d 1400 (Fed. Cir. 1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

As a first issue, the state of the art exemplified by Dobrovosky (Environmental and Molecular Mutagenesis, 36, pp. 283-291, 2000) teaches that carcinogens including those of anthracene are mutagens and carcinogens, and that exposure of an intact animal and/or living cells to the carcinogen would certainly produce a genotoxic alterations of genes including those of MMR genes that give rise to a cancer phenotype. In addition, the state of the art exemplified by Ngo *et al.* discloses that a nucleic acid sequence encoding a particular protein in any cell determines the protein' s structural, and functional properties, and a biological function of a encoded protein based on the primary amino acid sequence of the protein requires a knowledge of and description with regard to which amino acids in the protein' s sequence and/or nucleotides in the DNA, if any, are tolerant of modification and which are conserved (*i.e.*, expectedly intolerant to modification), and detailed knowledge of the ways in which a protein' s structure

relates to its functional usefulness (Ngo *et al.,* in The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz *et al.,* (ed.), Birkhauser, Boston, MA, pp. 492-495). Thus, an exposure of any cell to a carcinogen or toxic compound such as anthracene so as to produce a desire change in the primary sequence of any gene of interest and its subsequent conformation of the encoding protein product so as to give rise to a beneficial phenotype is complex and appears to contradict the toxic effect of anthracene. As a result, it is not apparent as to how a skilled artisan , without any undue experimentation, to reasonable extrapolate from the working examples which are consistent with the teaching of the prior art to the full breadth of the claims, which does not necessarily involve the making of a tumor model or cancer model as a result of the inactivation of the MMR processes.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 23-24, 27-29, 68, 70 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 23-24, 27-29, 68, 70 are indefinite in the recitation of "testing" without further elaborating as to what are exactly the material(s) and/or step(s) in order to carry out the testing. What material(s) and/or steps are intended for the "testing"? It is not apparent as to what are metes and bounds of the "testing" when read in light of the as-filed specification. Thus the claims are indefinite.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-13, 23-24, 27-29, 68, 70 are rejected under 35 USC 102(b) as being anticipated by, or in the alternative, under 35 USC 103 as being unpatentable over Chakravarti *et al.* (PNAS, Vol. 92, pp. 10422-10426, 1995) or Nakazawa (Molecular Carcinogenesis, 3, 202-209, 1990).

The claims embracing a method of inducing a genetoxic hypermutation of *ras* oncogenes in mice by exposing the skin cells of mice to carcinogene-DNA adducts and/or mutagens, e.g., DMBA, and further comprising an DNA binding assay to analyze the presence of the hypermutation in the activated *ras* oncogenes. Chakravarti *et al.* teach the same (abstract, page 10422, and page 10423). Nakazawa also teaches the same throughout the reference (abstract, page 203, columns 1 and 2). To the extent that the claims are readable on step of removing the carcinogens and/or mutagens from the medium prior to the analysis step, the claims are also obvious over the cited prior art because one would have been motivated to so in order to monitor the exposing time of carcinogens to the cells, as clearly taught by any of the cited prior art, *e.g.,* see Nakazawa, page 203, column 1.

Thus, the claims were anticipated, or in the alternative, were *prima facie* obvious over the cited prior art.

Claims 1-13, 22-24, 27-29, 68, 70 readable on a method for obtaining a plant with a genetic lesion (genotoxicity) in a gene sequence flanked in a wild type chromosome by known polynucleotide sequences, comprising exposing the plant and cells thereof to a mutagenic chemical substance, *e.g.,* anthrancene, and further comprises a DNA binding assay to compare the mutant DNA from the gene sequence in the treated plant with an amplified and corresponded DNA from the wild type plant, are rejected under 35 USC 103(a) as being unpatentable over Zhang (US 20002/0064879 A1), and further in view of Hoorn (Mutagenesis, Vol. 8, No. 1, pp. 7-10, 1993).

Zhang teaches a method for obtaining a plant with a genetic lesion (genotoxicity) in a gene sequence flanked in a wild type chromosome by known polynucleotide sequences, comprising exposing the plant and cells thereof to a mutagenic chemical substance and further comprises a DNA binding assay to compare the mutant DNA from the gene sequence in the treated plant with an amplified and corresponded DNA from the wild type plant (see entire pages 5 and 6, particularly paragraph 62 on page 5, and pages 7 and 8. Zhang does not teach that the

mutagenic chemical substance is anthracene. However, at the time the invention was made, Hoorn teaches that anthracene is a potent chemical mutagen for inducing random mutation in gene sequences.

Thus, it would have been obvious for one of ordinary skill in the art to have employed anthracene as the mutagen in the method of Zhang. One would have been motivated to so because Hoorn teaches that anthracene is a potent chemical mutagen for inducing random mutation in gene sequences, and because since plant cells do have gene sequences that are susceptible to toxic compounds that were routinely employed in the art to cause genotoxicity in any chromosome contained in any target cell.

Thus, the claims were *prima facie* obvious over the cited prior art.

Claims 1-13, 23-24, 27-29, 68, 70 are rejected under 35 USC 103 as being unpatentable over Chakravarti *et al.* (PNAS, Vol. 92, pp. 10422-10426, 1995) or Nakazawa (Molecular Carcinogenesis, 3, 202-209, 1990), and further in view of Kotiloglu et al. (EMBASE database, AN: 93208547, abstract cited from Doga –Turkish J. of Medical sciences, Vol. 18/2, pp. 115-126, 1993).

The rejection of the claims over Chakravarti *et al.* (PNAS, Vol. 92, pp. 10422-10426, 1995) or Nakazawa (Molecular Carcinogenesis, 3, 202-209, 1990) is applied as indicated above. To the extent that the references do not teach anthrancene being 1,2-dimethyl-9, 10 benzathracene or 1, 2-dimethyl anthracene, wherein R1 and R2 are methyl groups and each of R3-R10 is hydrogen, it would have been obvious for one of ordinary skill in the art as a matter of design choice to have employed any known anthrancene variant, which has minor modifications as to the positions of the CH3 groups and/or hydrogen atom located in the remaining bonding position of any anthrancene. One would have been motivated to do so because as evidenced by Kotiloglu et al., the positioning changes of the methyl groups does not effect the ability of 1,2-dimethyl-9, 10 benzathracene to induce mutagenesis, and particularly since Chakravarti discloses that various adducts with polycyclic aromatic hydrocarbon(s), which have all hydrogen

atoms and/or CH3 groups in various positions, are effective mutagens, as long as the mutagen bind to the target DNA by one-electron oxidation or mono-oxygenation (page 10422, column 2, page 10423, column 1).

Thus, the claims were *prima facie* obvious over the cited prior art.

No claim is allowed.

Any inquiry concerning this communication or earlier communications regarding the formalities should be directed to Patent Analyst Dianiece Jacobs, whose telephone number is **(703) 305-3388.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Dave Nguyen* whose telephone number is **(703) 305-2024**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Deborah Reynolds*, may be reached at **(703) 305-4051.**

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is **(703) 305-7401**.

Any inquiry of a general nature or relating to the status of this application should be directed to the *Group receptionist* whose telephone number is **(703) 308-0196**.

Dave Nguyen
Primary Examiner
Art Unit: 1632

DAVE T. NGUYEN
PRIMARY EXAMINER